

Application No. 09/672,812
Reply to the Final Office Action mailed February 27, 2004
and to the Advisory Action mailed July 13, 2004

Patent
Attorney Docket No. 85773-332

I. AMENDMENTS TO THE CLAIMS

Please find below a listing of claims that will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A feed arrangement for a telephone subscriber loop having a plurality of conductors, comprising:
 - a) an output for connection to the conductors of the subscriber loop to impress across the conductors ~~of the loop~~ a voltage differential; and
 - b) a control element operative for:
 - i. deriving a data element indicative of a rate of change of a current in the subscriber loop;
 - ii. processing the data element indicative of a rate of change of a current in the subscriber loop to detect ~~a change~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
 - iii. determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to a change in the number of CPEs active in the telephone subscriber loop,
 - iv. regulating a magnitude of a current in the subscriber loop to [[a]] the target loop current. value selected in a set of target values in dependence upon a number of CPEs active in the telephone subscriber loop.
2. (currently amended) A feed arrangement as defined in claim 1, wherein said control element being operative for determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop comprises said control element being operative for selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop. is responsive to an actuation of one CPE in the telephone subscriber loop that already contains at least one other active CPE, to effect a

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~~change in the target value at which the current in the subscriber loop is regulated.~~

3. (currently amended) A feed arrangement as defined in claim 2, wherein the target value loop current selected determined by said control element when A CPEs are active in the telephone subscriber loop is higher than the target value loop current selected determined by said control element when B CPEs are active in the telephone subscriber loop, where $A > B$.
4. (currently amended) A feed arrangement as defined in claim 3, wherein A is at least 1.
5. (currently amended) A feed arrangement as defined in claim 3, wherein the telephone subscriber loop includes a tip conductor and a ring conductor, a CPE active in the telephone subscriber loop being connected across the tip conductor and the ring conductor.
6. (original) A feed arrangement as defined in claim 5, wherein said control element includes at least one control input for receiving an input control signal indicative of the magnitude of a current in the tip conductor.
7. (original) A feed arrangement as defined in claim 6, wherein:
 - a) said control input is a first control input;
 - b) said input control signal is a first input control signal; and
 - c) said control element includes a second control input for receiving a second input control signal indicative of a magnitude of a current in the ring conductor.
8. (currently amended) A feed arrangement as defined in claim 7, wherein:
 - a) said feed arrangement includes an input for connection to a power supply that generates an output voltage applied to the input of said feed arrangement;

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- b) said control element is responsive to the first and second input control signals to generate an output control signal;
 - c) said control element includes an output to release the output control signal; and
 - d) the output control signal being suitable for controlling the output voltage of the power supply such as to bring about in the telephone subscriber loop a current having a magnitude that corresponds generally to a target value loop current selected determined by said control element ~~in said set of target values.~~
9. (currently amended) In combination:
- a) a power supply;
 - b) a feed arrangement for a telephone subscriber loop having a plurality of conductors, including:
 - i) an input connected to said power supply;
 - ii) an output for connection to the conductors of the subscriber loop to impress across the conductors ~~of the subscriber loop~~ a voltage differential; and
 - iii) a control element operative for:
 - a. deriving a data element indicative of a rate of change of a current in the subscriber loop;
 - b. processing the data element indicative of a rate of change of a current in the subscriber loop to ~~detect a change~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
 - c. determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to a change in the number of CPEs active in the telephone subscriber loop,
 - d. regulating a magnitude of a current in the subscriber loop to ~~[[a]]~~ the target value loop current, ~~selected in a set of target values in~~

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~~dependence upon a number of CPEs active in the telephone
subscriber loop.~~

10. (currently amended) A combination as defined in claim 9, wherein:
- a) said control element includes an output to release an output control signal;
 - b) said output being in communication with said power supply; and
 - c) said power supply being responsive to the output control signal to impress a voltage differential at said input to bring about in the subscriber loop a current having a magnitude corresponding generally to the target loop current value selected in the set of target values.
11. (currently amended) A combination as defined in claim ~~40~~ 9, wherein said control element being operative for determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop comprises said control element being operative for selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop. ~~is responsive to an actuation of at least one CPE in the telephone subscriber loop that already contains at least one other active CPE, to effect a change in the target value at which the current in the subscriber loop is regulated.~~
12. (currently amended) A combination as defined in claim 11, wherein the target value loop current selected determined by said control element when A CPEs are active in the telephone subscriber loop is higher than the target value loop current selected determined by said control element when B CPEs are active in the telephone subscriber loop, where $A > B$.
13. (currently amended) A combination as defined in claim 12, wherein A is at least 1.

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14. (currently amended) A combination as defined in claim 13, wherein the telephone subscriber loop includes a tip conductor and a ring conductor, a CPE active in the telephone subscriber loop being connected across the tip conductor and the ring conductor.
15. (currently amended) A combination as defined in claim 14, wherein said control element includes at least one control input for receiving an input control signal indicative of a magnitude of a current in the tip conductor.
16. (original) A combination as defined in claim 15, wherein:
- a) said control input is a first control input;
 - b) said input control signal is a first input control signal; and
 - c) said control element includes a second control input for receiving a second input control signal indicative of a magnitude of a current in the ring conductor.
17. (currently amended) A combination as defined in claim 16, wherein said control element is responsive to the first and second input control signals to generate the output control signal.
18. (currently amended) A method for regulating ~~[[the]]~~ a magnitude of a current in a subscriber loop, comprising:
- a) ~~regulating the magnitude of the current to a first target value when a first CPE is active in the subscriber loop;~~
 - b)a) deriving a data element indicative of a rate of change of ~~[[a]]~~ the current in the subscriber loop;
 - e)b) processing the data element indicative of a rate of change of ~~[[a]]~~ the current in the subscriber loop to ~~detect an increase~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
 - d)c) determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to an increase

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~~in the number of CPEs active in the telephone subscriber loop;~~

- d) regulating the magnitude of the current to ~~a second~~ the target value loop current, ~~higher than the first target value when at least one additional CPE becomes active in the subscriber loop such that the subscriber loop feeds at least two CPEs simultaneously.~~

19. (currently amended) A feed arrangement for a telephone subscriber loop having a plurality of conductors, comprising:

- a) output means for connection to the conductors of the subscriber loop to impress across the conductors ~~of the loop~~ a voltage differential; and
- b) control means for:
- i. deriving a data element indicative of a rate of change of a current in the subscriber loop;
 - ii. processing the data element indicative of a rate of change of a current in the subscriber loop to ~~detect a change~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
 - iii. determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to a change in the number of CPEs active in the telephone subscriber loop.
 - iv. regulating a magnitude of a current in the subscriber loop to ~~[[a]] the target loop current. value selected in a set of target values in dependence upon a number of CPEs active in the telephone subscriber loop.~~

20. (new) A feed arrangement as defined in claim 1, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at the feed arrangement when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.

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21. (new) A combination as defined in claim 9, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at the feed arrangement when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.
22. (new) A method as defined in claim 18, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at a feed arrangement supplying the current in the subscriber loop when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.
23. (new) A feed arrangement as defined in claim 19, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at the feed arrangement when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.
24. (new) A method as defined in claim 18, wherein said determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop comprises selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop.
25. (new) A feed arrangement as defined in claim 19, wherein said control means for determining a target loop current on the basis of the variation in a number of

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CPEs active in the subscriber loop comprises means for selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop.